

Application No. 10/616,219

Attorney Docket No. 03P01822US01

REMARKS

Claims 1-22 are currently pending in the application with claims 1-4, 7, 10-11, 13-14 and 18-19 being amended, claim 17 being cancelled, and claims 21 and 22 being added by this response.

Claim 1 has been amended to include the limitations of claims 2 and 13. Claim 2 has been amended to include the limitations of claim 3. Claim 3 has been amended to delete the limitations placed in claim 2 and further recite that "said image element common display attribute comprises at least one of, (a) a particular image element fill pattern". Support for the amendment to claim 3 can be found throughout the specification and specifically on page 8, paragraph 1. Claims 4 and 14 have been amended to recite "said sliding bar representation user determined range includes at least two" of the listed elements. Support for the amendment to claim 4 can be found throughout the specification and specifically on page 6, paragraph 2 as well as in original claim 6. Claim 7 has been amended to recite "said single display image". Claim 10 has been amended by adding "said single display image includes a plurality of individual current values and associated sliding bar representations of individual patient parameters oriented in said single display image in a rotational orientation." Support for the amendment to claim 10 can be found throughout the specification and specifically on page 8, paragraph 3. Claim 11 had been amended to recite "said single display image includes a plurality of individual current values and individual current values and associated sliding bar representations of individual patient parameters are oriented in said single display image in at least one of, (a) a horizontal orientation and (b) a vertical orientation." Support for the amendment to claim 11 can be found throughout the specification and specifically on page 8, paragraph 3. Claim 13 has been amended to include limitations of claim 17. Claim 18 has been amended to more clearly recite "a processor for initiating generation of data representing a single display image including" for purposes of clarification. Claim 19 has been amended to more clearly recite "plurality of corresponding different user determined ranges

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comprise at least two of, (a) a normal range (b) a cautionary range and (c) an excessive range and graphically indicates where said current value is within a range" for purposes of clarification.

New claims 21 and 22 have been added to recite the circular pattern of the plurality of current values as clearly illustrated in Figures 6 and 7.

Rejection of Claims 1-4, 7, 9, 12, and 18-19 under 35 U.S.C. 102(e)

Claims 1-4, 7, 9, 12 and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Biondi et al. (U.S. Patent No. US 2003/0037786).

The present claimed invention recites a system for providing a user interface presenting a plurality of patient medical parameters. The system includes an acquisition processor for acquiring, from a patient monitoring device, data representing a plurality of patient parameters. The system also includes a processor for initiating the generation of data representing a single display image including a plurality of current values of a plurality of patient parameters and a sliding bar representation of each of the plurality of current values of the plurality of patient parameters together with corresponding range indicators for graphically indicating whether each of the current values is outside of a corresponding user determined range. The range indicators correspond to a plurality of different value ranges individually having range limit identifiers with a common visual display attribute with a current value indicator image element when the current value is within an individual range. The current value indicator image element has a second visual display attribute different from the first visual display attribute when the current value is outside an individual range. Independent claims 1 and 18 include similar features to those discussed above.

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Biondi et al. describe a method and system for automatically weaning a patient from a ventilator. The ventilator system includes a pressure source in communication with the patient's respiratory system to provide pressure support to the patient. The system further includes a breath frequency monitor, a minute volume flow meter, an input device, and a data processing unit. The device measures the patient's minute volume, breath frequency, and detects a patient's spontaneous breath. By comparing these two measurements with predetermined rates entered by a clinician, the device decreases patient pressure support level if the patient's spontaneous breathing rate falls within the predetermined range and the patient's minute volume exceeds the predetermined minute volume.

However, Biondi et al. neither disclose nor suggest range indicators which "correspond to a plurality of different value ranges individually having range limit identifiers with a common visual display attribute with a current value indicator image element when said current value is within an individual range and said current value indicator image element having a second visual display attribute different from said first visual display attribute when said current value is outside said individual range" as claimed in claim 1 of the present invention. In fact, Figure 7 of Biondi et al., cited in the Office Action, displays a number of different waveforms, trendlines, and event logs. Figure 9 of Biondi et al., also cited in the Office Action, shows a control slider generated and displayed on a side of the display screen when a user selects a control button on a touch screen (see page 5, [0059]). Biondi et al. is not concerned with providing a "common visual display attribute ...when said current value is within an individual range" or "a second visual display attribute different from said first visual display attribute when said current value is outside said individual range" as in the present claimed invention. Additionally, Biondi et al. neither disclose nor suggest "generation of data representing a single display image including, (a) a plurality of current values of said plurality of patient parameters and (b) a sliding bar representation of each of said plurality of current values"

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as in the present claimed invention. Figure 9 of Biondi et al. only show a single control slider which is displayed when a user selects a control button.

Regarding claim 2, although Biondi et al. describe "Multiple color coded background images can be maintained and images removed from the desired one depending on the state of the waveform" [see para. 0059], Biondi et al. neither disclose nor suggest a system wherein "said image element common display attribute comprises a particular image element color" as claimed in claim 2 of the invention. The image element common display attribute comprising a particular image element color as claimed in claim 2 enables a user to quickly, efficiently and comprehensively identify abnormal or other conditions within a restricted image presentation. Such is neither disclosed nor suggested by Biondi et al.

Biondi et al. also neither disclose nor suggest a system wherein "said sliding bar representation user determined range includes at least two of, (a) a normal range indicator, (b) a cautionary range indicator and (c) an excessive range indicator and graphically indicates where said current value is within a range" as claimed in claims 4 and 19 of the present invention. Biondi et al. merely disclose a single sliding bar representation that permits user selection of upper and lower range limit identifiers and a graphical indicator of the current value. This is unlike the present invention as claimed in claims 4 and 19 which, displays a sliding bar indicator including at least two of an excessive range, a normal range, and a cautionary range. Thus, the present claimed system allows for simultaneous representation of at least two range limit parameters indicative of severity of the current value via "said sliding bar." Therefore, the present invention as claimed in claims 4 and 19 is not anticipated by Biondi et al.

Furthermore, Biondi et al. neither disclose nor suggest "said sliding bar representation of said patient parameter current value is presented together with corresponding range indicators for graphically indicating whether said patient parameter

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current value is outside of a plurality of corresponding different user determined ranges and said range indicators correspond to a plurality of value ranges individually having range limit identifiers with a common display attribute with a current value indicator image element when said current value is within an individual range" as claimed in claim 18 of the present invention. Biondi et al. disclose a single sliding bar representation that permits user selection of upper and lower range limit indicators and a graphical indicator of the current value. Additionally, as stated above, Biondi et al. neither disclose nor suggest "range limit identifiers with a common display attribute with a current value indicator image element when said current value is within an individual range" as claimed in claim 18.

Claims 2-4, 7, and 9 are dependent on claim 1 and thus, all arguments that apply to claim 1 also apply to claims 2-4, 7, and 9. Claim 19 is dependent on claim 18 and thus all arguments presented with respect to claim 18 also apply to claim 19. Specifically, Biondi et al. neither disclose nor suggest "said range indicators correspond to a plurality of different value ranges individually having range limit identifiers with a common visual display attribute with a current value indicator image element when said current value is within an individual range and said current value indicator image element having a second visual display attribute different from said first visual display attribute when said current value is outside an individual range" as claimed in claims 1 and 18 of the present invention.

In view of the above remarks and amendments to the claim 1 it is respectfully submitted that Biondi et al. contains no 35 U.S.C. 112 enabling disclosure that renders the present invention as claimed in amended claims 1 and 18 unpatentable. As claims 2-4, 7, 9 and 12 are dependent on claim 1 and claim 19 is dependent on claim 18, it is respectfully submitted that claims 2-4, 7, 9, 12 and 19 are also not anticipated by Biondi et al. for the reasons discussed above regarding claims 1 and 18. Furthermore, it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

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Claims 5 and 6 are rejected under 35 U.S.C. 103(a)

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biondi et al. (U.S. Patent No. US 2003/0037786).

Claim 5 recites a system where in the sliding bar representation includes a current value indicator image element and a plurality of range limit identifier image elements corresponding to a plurality of value ranges and an individual range limit identifier has a common display attribute with the current value indicator image element when the current value is within the individual range. Claim 6 recites a system wherein a plurality of ranges comprise at least two of a normal range, a cautionary range and an excessive range. Claim 6 further recites that the image element common display attribute comprises at least one of (a) a particular image element color, (b) a particular image element shape, (c) a particular image element type of highlighting, (d) a particular image element foreground or background, (e) a particular type of image element shading, (f) a particular image element outline, and (g) a particular image element fill pattern. As discussed above, Biondi et al. teaches a method and system for automatically weaning a patient from a ventilator. Biondi et al., however, neither disclose nor suggest a system wherein range indicators which "correspond to a plurality of different value ranges individually having range limit identifiers with a common visual display attribute with a current value indicator image element when said current value is within an individual range and said current value indicator image element having a second visual display attribute different from said first visual display attribute when said current value is outside said individual range" as claimed in claim 1 of the present invention. In fact, Figure 7 of Biondi et al., cited by the Examiner, displays a number of different waveforms, trendlines, and event logs. Figure 9 of Biondi et al. shows a control slider generated and displayed on a side of the display screen when a user selects a control button on a touch screen (see page 5, [0059]). Biondi et al. is not concerned with providing a "common visual display ...when said current value is within

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an individual range" or "a second visual display attribute different from said first visual display attribute when said current value is outside said individual range" as in the present claimed invention. Additionally, Biondi et al. neither disclose nor suggest "generation of data representing a single display image including, (a) a plurality of current values of said plurality of patient parameters and (b) a sliding bar representation of each of said plurality of current values" as in the present claimed invention. Figure 9 of Biondi et al. only show a single control slider which is displayed when a user selects a control button.

Biondi et al. also neither disclose nor suggest a system wherein a "plurality of ranges comprise at least two of, (i) a normal range, (ii) a cautionary range and (iii) an excessive range; and said image element common display attribute comprises at least one of, (a) a particular image element color, (b) a particular image element shape, (c) a particular image element type of highlighting, (d) a particular image element foreground or background, (e) a particular type of image element shading, (f) a particular image element outline, and (g) a particular image element fill pattern" as claimed in claim 6 of the present invention. Biondi et al. merely disclose a single sliding bar representation that permits user selection of upper and lower range limit indicators and a graphical indicator of the current value. This is unlike the present claimed invention, which displays a sliding bar indicator of an excessive range as well as the normal range and cautionary range. Thus the sliding bar of the present claimed invention is wholly unlike the sliding bar disclosed by Biondi et al. Biondi et al. do not disclose or suggest a sliding bar able to display multiple ranges indicative of severity of the current value as in the present claimed invention.

In view of the above remarks and amendments to claim 1, it is respectfully submitted that there is no 35 U.S.C. 112 enabling disclosure in Biondi et al. that would renders the present invention as claimed in claim 1 unpatentable. Additionally, as claims 5 and 6 are dependent on claim 1, it is respectfully submitted that claims 5 and 6 are also not patentable over by Biondi et al. It is thus respectfully submitted that this rejection has been satisfied and should be withdrawn.

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Claims 8, 10 and 11 are rejected under 35 U.S.C. 103(a)

Claims 8, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biondi et al. (U.S. Patent No. US 2003/0037786) as applied to claims 1 and 7 above, and further in view of Wallace et al. (U.S. Patent No. 5,915,379).

Wallace et al. describe a ventilation control system for controlling the ventilation of a patient. The ventilation control system utilizes a user-friendly user interface for the display of patient data and ventilator status, as well as for entering values for ventilation settings to be used to control the ventilator. Wallace et al., however, with Biondi et al., neither disclose or suggest that "said range indicators correspond to a plurality of different value ranges individually having range limit identifiers with a common visual display attribute with a current value indicator image element when said current value is within an individual range and said current value indicator image element having a second visual display attribute different from said first visual display attribute when said current value is outside an individual range" as claimed in claim 1 of the present invention. Wallace et al. shows, in Figure 5 cited by the Examiner, a same patient button and a new patient button having a common attribute. However, the same patient and new patient button are unlike the "range limit identifiers with a common visual display attribute with a current value indicator image element when said current value is within an individual range and said current value indicator image element having a second visual display attribute different from said first visual display attribute when said current value is outside an individual range" as claimed in claim 1 of the present invention. Claims 8, 10 and 11 are all dependent on Independent claim 1 and thus, all arguments presented above and in response to the rejection of Claim 1 apply to these claims as well.

Additionally, Claim 10 further recites that, the single display image includes a plurality of individual current values and associated sliding bar representations of

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individual patient parameters oriented in the single display image in a rotational orientation. The sliding bar representation represents at least one of a linear scale and a logarithmic scale. Wallace et al., with Biondi et al., also neither disclose nor suggest a system wherein a "single display image includes a plurality of individual current values and associated sliding bar representations of individual patient parameters oriented in said single display image in a rotational orientation" as claimed in claim 10 of the present invention. Wallace and Biondi et al. show individual current values, however, these current values are not in a "single display image in a rotational orientation" as claimed in claim 10 of the present invention.

Furthermore, if one were to combine Biondi et al. and Wallace et al., one would produce a ventilator with a control system utilizing a user-friendly user interface for the display of patient data and ventilator status that is designed for weaning patients from a ventilator. This combination still neither discloses nor suggests a system wherein a "said range indicators correspond to a plurality of different value ranges individually having range limit identifiers with a common visual display attribute with a current value indicator image element when said current value is within an individual range and said current value indicator image element having a second visual display attribute different from said first visual display attribute when said current value is outside an individual range" as claimed in claim 1 of the present invention.

In view of the above remarks and amendments to the claims, it is respectfully submitted that there is no 35 U.S.C. 112 enabling disclosure in Biondi et al. or Wallace et al., that would render the present invention as claimed in claim 1 unpatentable. As claims 8, 10 and 11 are dependent on claim 1, it is respectfully submitted that these claims are also patentable over Biondi et al. when taken alone or in combination with Wallace et al. It is thus further respectfully submitted that this rejection has been satisfied and should be withdrawn.

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Claims 13-15, 17 and 20 are rejected under 35 U.S.C. 103(a)

Claims 13-15, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biondi et al. (U.S. Patent No. US 2003/0037786) as applied to claims 1 and 18 above, and further in view of Mostafavi (US 2004/0116804). Claim 17 has been cancelled by this response and its features added to independent claim 13.

Claim 13 recites a system for providing a user interface presenting a plurality of patient medical parameters. The system includes an acquisition processor for acquiring, from a patient monitoring device, data representing a plurality of patient parameters and a processor for initiating generation of data representing a single display image. The single display image includes a plurality of current values of a plurality of patient parameters and sliding bar representations of the plurality of current values of the plurality of patient parameters together with corresponding range indicators for graphically indicating whether the current values are outside of corresponding user determined ranges. The range indicators correspond to a plurality of different value ranges individually having range limit identifiers with a common display attribute with a current value indicator image element when the current value is within an individual range. The individual current values and associated sliding bar representations of individual patient parameters are ordered by type of associated patient parameter so that patient parameters that typically exhibit out of range conditions together are adjacent in the display image.

Mostafavi describes a method for generating one or more images by collecting data samples representative of a motion of an object, acquiring image data of at least a part of the object over a time interval and synchronizing the data samples and the image data to a common time base. However, Mostafavi, similarly to Biondi et al., when taken alone or in combination, neither disclose nor suggest "individual current values and associated sliding bar representations of individual patient parameters are ordered by type of associated patient parameter so that patient parameters that typically exhibit out of range conditions

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together are adjacent in said single display image" as claimed in claim 13 of the present invention. Mostafavi, in Figures 16 and 17 as cited by the Examiner, only describe using slider elements to track motion of the patient during patient positioning. In fact, there is no need for Mostafavi to provide the "sliding bar representations...ordered by type of associated patient parameter so that patient parameters that typically exhibit out of range conditions together are adjacent in said single display image" as in the present claimed invention as the slider elements of Mostafavi are not concerned with notifying the viewer of an out of range condition, only the position of the patient. Additionally, Mostafavi, similar to Biondi et al., neither disclose nor suggest "said range indicators correspond to a plurality of different value ranges individually having range limit identifiers with a common display attribute with a current value indicator image element when said current value is within an individual range;" as claimed in claim 13 of the present invention. As mentioned above, Mostafavi only describes the use of slider elements to show patient movement and positioning.

Mostafavi, with Biondi et al., also neither discloses nor suggests "said sliding bar representation of said patient parameter current value is presented together with corresponding range indicators for graphically indicating whether said patient parameter current value is outside of a plurality of corresponding different user determined ranges and said range indicators correspond to a plurality of value ranges individually having range limit identifiers with a common display attribute with a current value indicator image element when said current value is within an individual range," as in the present claimed invention.

Additionally, there is no reason or motivation to combine the systems of Biondi et al. and Mostafavi. Biondi et al. are concerned with automatically weaning a patient from a ventilator while Mostafavi is concerned with generating one or more images by collecting data samples representative of a motion of an object and acquiring image data of at least a part of the object over a time interval and synchronizing the data samples and the image

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data to a common time base. Both Mostafavi and Biondi et al. are concerned with totally different objectives and purposes. Mostafavi is concerned with radiation application while Biondi et al. are concerned with weaning a patient from a ventilator. Neither of these references is concerned with the objectives of the present claimed invention, e.g. to provide a viewer with data on multiple patient parameters in an easily readable and understandable single image display.

Even if Biondi et al. and Mostafavi were to be combined, the combination would produce a ventilation system designed to wean patients from a ventilator and collect static samples representative of a motion of an object. This combination still neither discloses nor suggests a system wherein "individual current values and associated sliding bar representations of individual patient parameters are ordered by type of associated patient parameter so that patient parameters that typically exhibit out of range conditions together are adjacent in said single display image" as claimed in claim 13 of the present invention. This combination also neither discloses nor suggests a system wherein "said sliding bar representation of said patient parameter current value is presented together with corresponding range indicators for graphically indicating whether said patient parameter current value is outside of a plurality of corresponding different user determined ranges and said range indicators correspond to a plurality of value ranges individually having range limit identifiers with a common display attribute with a current value indicator image element when said current value is within an individual range" as claimed in claim 18 of the present invention.

In view of the above remarks and amendments to the claims it is respectfully submitted that Biondi et al. and Mostafavi, whether taken alone or in combination, contain no 35 U.S.C. 112 enabling disclosure that would render the present invention as claimed in claims 13 and 18 unpatentable. Additionally, as claims 14 and 15 are dependent on claim 13, and claim 20 is dependent on claim 18, it is respectfully submitted that claims 13, 14 and 20 are also not anticipated by Biondi et al. and Mostafavi for the reasons discusses

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above regarding claims 13 and 18. It is thus respectfully submitted that this rejection has been satisfied and should be withdrawn.

Claim 16 is rejected under 35 U.S.C. 103(a)

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Biondi et al. (U.S. Patent No. US 2003/0037786) in view of Mostafavi (US 2004/0116804) as applied to claim 15 above, and further in view of Wallace et al. (U.S. Patent No. 5,915,379).

Claim 16 discloses a system wherein the processor receives patient mass and height information for use in computing body surface area and cardiac index. The Examiner contends that Wallace et al. discloses a graphic user interface for a patient ventilator, wherein the patient body weight is entered for a new patient setup procedure. However, Wallace et al, with Biondi et al. and Mostafavi, neither disclose nor suggest the processor receiving patient height information as claimed in claim 16. The significance of height information is so that the processor can compute the body surface area of the patient to produce a cardiac index. In view of the above remarks, applicant respectfully submits that Wallace et al. add nothing when taken alone or in combination with Biondi et al. and Mostafavi that would make the present invention as claimed in claim 16 unpatentable.

Additionally, there is no motivation to combine the systems of Biondi et al., Mostafavi, and Wallace et al. Biondi et al. are concerned with automatically weaning a patient from a ventilator while Mostafavi is concerned with generating one or more images by collecting data samples representative of a motion of an object and acquiring image data of at least a part of the object over a time interval and synchronizing the data samples and the image data to a common time base. Wallace et al. are concerned with a ventilator control system utilizing a user-friendly user interface for the display of patient data and ventilator status. Biondi et al., Mostafavi and Wallace et al. are each concerned with

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totally different objectives and purposes. Additionally, none of these references are concerned with the objectives of the present claimed invention e.g. to provide a viewer with data on multiple patient parameters in an easily readable and understandable single image display.

Even if Biondi et al., Mostafavi and Wallace et al. were combined, the combination would produce a ventilation system utilizing a user-friendly user interface for the display of patient data and ventilator status designed to wean patients from a ventilator and collect static samples representative of a motion of an object. This combination still neither discloses nor suggests a system disclose a system where "said processor receives patient mass and height information for use in computing body surface area and cardiac index" as claimed in claim 16 of the present invention.

In view of the above remarks, it is respectfully submitted that Biondi et al. Mostafavi, and Wallace et al. when taken alone or in combination, contain no 35 U.S.C. 112 enabling disclosure that would render the present invention as claimed in claim 16 unpatentable. It is thus respectfully submitted that this rejection has been satisfied and should be withdrawn.

Having fully addressed the Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicant's attorney at the phone number below, so that a mutually convenient date and time for a telephonic interview may be scheduled.

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Information Disclosure Statement

An Information Disclosure Statement including references derived from a Foreign Search Report for a corresponding foreign application is submitted. It is submitted that these references do not disturb the patentability of the amended claims for the reasons given herein.

No fee is believed due. However, if a fee is due, please charge the additional fee to Deposit Account 19-2179.

Respectfully submitted,
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